

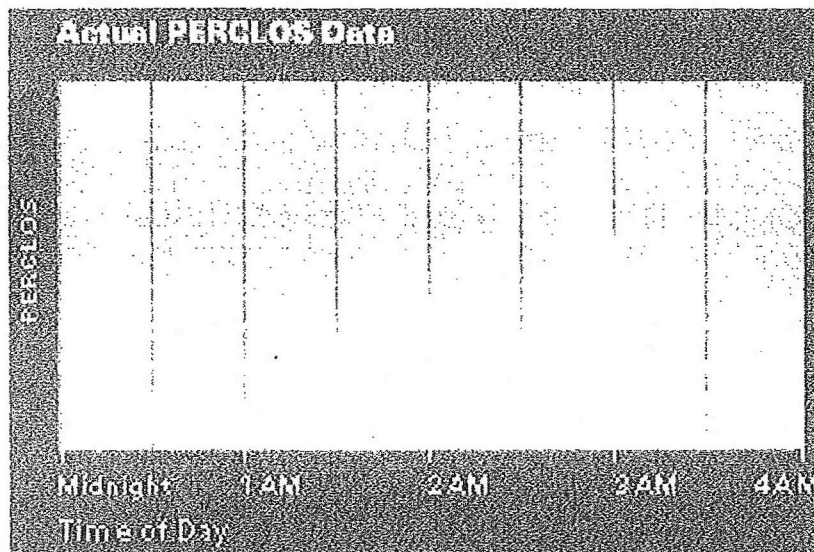
decision-making. In cases where a driver is subjected to sleep deprivation, there are specific hours within a 24 hour cycle as to which an individual will likely suffer from increased fatigue known as the Circadian Rhythm.

The FMCSR states the following as to a motor carrier's obligation regarding ill or fatigued drivers:

- **49 CFR 392.3 Ill or Fatigued operator-** *No driver shall operate a commercial motor vehicle, and a motor carrier shall not require or permit a driver to operate a commercial motor vehicle, while the driver's ability or alertness is so impaired, or so likely to become impaired, through fatigue, .....*

The FMCSA states and/or suggests the following as to proper rest:

- *Be sure to get an adequate amount of sleep each night. If possible, do not drive while your body is naturally drowsy, between the hours of 12 a.m. to 6 a.m. and 2 p.m. to 4 p.m. Driver drowsiness may impair a driver's response time to potential hazards, increasing the chances of being in a crash.*
- *The circadian rhythm refers to the wake/sleep cycle that our body goes through each day and night. The cycle involves our internal clock and controls the daily pattern of alertness in a human body. With inadequate sleep, the drowsiness experienced during natural "lulls" can be even stronger and may have a greater adverse effect on a driver's performance and alertness.*
- *A study by the Federal Motor Carrier Safety Administration (FMCSA) found that driver alertness was related to "time-of-day" more so than "time-on-task. Most people are less alert at night, especially after midnight. This drowsiness may be enhanced if you have been on the road for an extended period of time.*



Source: EyeAlert

This is actual PERCLOS data from a truck driver on the PA Turnpike driving between midnight and 4:00AM. Numbers in vertical column represent percentage of eye closure. Errors in judgment and observation will be encountered especially if one had not rested as prescribed by the FMCSR part 395.

It is understood that this crash occurred at approximately 5:48AM, however, evidence indicates that Chandler started his CMV at 4:45AM on the morning of the crash. It is undetermined what time he awoke on the morning of the crash. Additionally, depending upon what he did regarding rest prior to the day of the crash may be evidence supporting fatigued driving.

This information is offered based on this crashes examination, the undersigned can only conclude on of three reasons as to why Chandler could have run his CMV off the travel portion of I-40. These are: fatigued driving, inattentive driving or driving while ill. These combined with driving to fast for conditions.

#### 5.2.5 Medical-

What is commonly referred to as a "DOT Physical" is required by all CDL-A drivers. As part of the DOT physical, the attending physician will review a form with questions as to the driver applicant's medical history. It is vitally important that the driver applicant fill the forms out correctly and accurately in so that the ME can correctly and accurately assess the driver applicant's health qualifications and fitness to drive a potentially 80,000# CMV.

In the comparison of the medical questionnaire as filled out by Chandler there exists a number of inconsistencies that rise to the level of significant concern.

Addressing the latest physical Health History questionnaire of September 28<sup>th</sup>, 2010, Chandler checks off as "no" for the following boxes with potential inaccuracies:

- *Eye disorders or impaired vision (except corrective lenses)*
- *Heart disease or heart attack; other cardiovascular condition; medication: \_\_\_\_\_*

If Chandler checked off "yes" he would have had to reveal in greater specificity the information to assist the ME in making his determination for fitness to drive a CMV.

In deposition testimony Chandler states the following: *Q: "Do you recall around that period of time having a condition with your left eye that you described as impairing your vision to the point where it appeared as if you were staring through a shower stall door?" A: "I believe that comment was taken from my files of the Vitreoretinal Foundation here in Memphis, Tennessee, after various tests and substances that we had been injected with to determine exactly why I was there."* (TC; 308:11). Without further



evidence, this is an issue that may be of concern whereas the ME should have been informed.

Further Chandler testifies as to the following regarding his high blood pressure. "Okay. Daily I take Metformin and Lotrel, Metformin for the diabetes, and, of course, Lotrel for the aforementioned blood pressure. ...." (TC; 400:22). It is important to note that Chandler did not check off "yes", nor did he list the hypertension medication Lotrel on the form.

CMV drivers that have hypertension disorder concerns and taking medications may be considered for more aggressive and more frequent monitoring by the ME based on the ME's opinion.

#### 5.2.6 Crash Preventability-

There are numerous definitions as to the prevention of crashes by CMV drivers. The FMCSA offers one such definition as such:

- § 385.3 Definitions and acronyms. Preventable accident on the part of a motor carrier means an accident (1) that involved a commercial motor vehicle, and (2) that could have been averted but for an act, or failure to act, by the motor carrier or the driver.

Depending on the actual facts of what occurred at or about 5:48AM on the 18<sup>th</sup> of January, 2011 is dependent on the actual "act" or "failure to act" -- or a combination thereof -- that occurred causing Chandler to leave the travel lanes of the road surface. That would be the determining factor as to causation according to the FMCSR.

Further, NATMI states: *NATMI, Preventability of Accidents* -- "The decision of preventability should always be made solely on the basis of what the company driver did or did not reasonably do to prevent the accident."

In addition to the FMCSR definition of a preventable accident and NATMI's definition, Chandler's employer has likewise ruled this crash as "preventable/avoidable" on Chandler's part on February 7<sup>th</sup>, 2011.

There were no other vehicles involved in the subject crash. Therefore, with all regulations, industry standards of care and Chandler's employer identified this crash as "preventable" based on its investigation, and this conclusion is consistent with all regulations and the standards of care applicable to professional drivers. A CMV driver who runs off the road without third party interference under circumstances as established by the evidence reviewed by the undersigned, has nobody to blame for the crash but himself/herself as it was he/she who "failed to act" by observing the proper Advanced Warning Area.

There are two additional organizations that opine on how a "preventable accident" is defined, they are the NTSC and ICC, Chandler's employer. The opinions are as such:

- NTSC: *"Any accident in which the driver failed to do everything they reasonably could have done to avoid it."*
- ICC: *"If there is something the driver could have done, should have done or should not have done to avert the accident from occurring, then it is a preventable accident."*

ICC has further training of their drivers both company drivers as well as owner operators that speaks to driving in construction zones. They specify "3 crash prevention tips for these work zones":

- *"Before the construction zone – Watch closely for speeding motorists who may cut in front of you. Be prepared to make room for them. Carefully read warning signs for instruction on which lane to drive in and at what speed."*
- *"Inside the construction zone – Maintain proper following distances watching ahead for sudden slow down areas and workers/equipment."*
- *"After the construction zone – Watch out for impatient motorists that may quickly change lanes and pass without warning. Be patient and accelerate at your own pace."*

According to records, Chandler was part of this training as included syllabus of his Driver Orientation Program.

In addition to the Driver Orientation Training at ICC, Chandler has also received driver safety training from former employers.

A study by NHTSA conducted in July of 2011 titled "Run Off-Road Crashes: An On-Scene Perspective" states the following:

- *The results show that over 95 percent of the critical reasons for single-vehicle ROR crashes were driver-related. The most frequently occurring category of critical reasons attributed to drivers was driver performance errors (27.7%) such as "overcompensation" and "poor directional control," followed by driver decision errors (25.4%) such as "too fast for curve" and "too fast for conditions," critical non-performance errors (22.5%) such as "sleeping" and "heart attack/other physical impairment," and recognition errors (19.8%) such as "internal distractions" and "external distractions."*

### **5.2.7 Inattentive Driving-**

Again, experience of the undersigned demonstrates that often the absence of braking evidence resultant from a pre-crash hard brake application often is caused by inattentive



driving. As such, and FMCSA recognizing this as a significant problem in the commercial motor carrier industry and has published the following:

- *Distraction can be defined as any time a driver diverts his/her attention from the driving task. This may include external distractions, such as looking out the window at a passing building, street sign, or person, or internal distractions, such as talking on a cell phone, eating, reading, or adjusting the radio. The Large Truck Crash Causation Study (LTCCS) reported that 8 percent of large-truck crashes occurred when Commercial Motor Vehicle (CMV) drivers were externally distracted and 2 percent of large truck crashes occurred when the driver was internally distracted*
  - *Did You Know? A study published in April 2006 found that driver inattention was the leading factor in crashes and near crashes. The study reports that nearly 80 percent of crashes involved some form of driver inattention within 3 seconds before the incident.*
  - *Did You Know? Inattention or other mental activities distracting you from driving can cause you to gaze blindly at the road and/or objects ahead without actually seeing/recognizing them because your attention is focused somewhere else.*

As to skid evidence, Trooper Meyer states the following in deposition testimony: *Q: "Where did you look for skid marks? A: I looked - - where this accident occurred, there's a dropoff, like an embankment. But prior - - prior to that, I went back up onto the interstate and - where you exit off I-40/281. I went back up onto the interstate to check and see if I could find any kind of skid marks up there where the gentlemen had left the roadway, and I did not find any". (SWM; 32:24)*

Distracted driving is a very serious problem on today's roads. All too often a CMV driver may fall prey to the temptations to interact with one of many available distractions in the cab of his CMV causing irreversible and often tragic consequences.

### 5.3 Too Fast For Conditions-

*"The number one reason for extreme weather crashes is driving too fast for conditions. Controlling your speed is always vital - in extreme weather conditions it is especially important."* This statement is on page 16 of the ICC Driver Safety Manual.

It has not been absolutely determined that speed was a contributing factor to the subject crash as there is no substantial evidence indicating as such. However, the following will substantiate the probability that speed was in fact a contributing factor.

In a memo dated Thursday, January 27, 2011 from one Mr. Kelly Peeks of ILS, he states the following as to speed: *"His average speed was 62-63 MPH at point of it dropping to 27 MPH and then to nothing more. Something happened that severed the system quickly*

*(like an impact at the 27 MPH causing the tractor to stop) so it did not give me the normal data of 30 seconds after an accident".*

Without the benefit of examining the data such as ETOG, ECM data or PeopleNet as in this crash, it is difficult to opine with certainty as to a driver's speeds through the crash sequences. However, based on common logic and experience it is highly unlikely that Chandler was operating his CMV at 27 MPH unless he was subjected to a medical condition causing his inattention and inability to respond, or he simply fell asleep behind the wheel. It is more likely he was operating his CMV at the "62-63 MPH" speed while still on the travel portion of the roadway surface.

It is most likely that the recorded speed of 27 MPH occurred at the point of the crash with the damage causing the PeopleNet equipment to fail. As stated from Peeks: *"like an impact at the 27 MPH causing the tractor to stop"*.

For examination purposes only, the undersigned will assume a 27 MPH speed as Chandler's CMV left the travel portion of the interstate.

At the speed of 27 MPH Chandler would be traveling at 40 FPS. It is estimated that Chandler was traveling off the road surface for in excess of 500 linear feet, likely closer to 600 linear feet. If the low-end estimate of 500 linear feet is utilized that would have provided Chandler nearly 13 seconds to bring his bobtail CMV to a stop.

There are several factors when considering stopping distance; alertness, health, mental acuity, reaction time and CMV airbrake lag time. The time considered for calculation purposes from perception of the hazard to reaction to the hazard is 1.5 seconds. The mechanical lag time in a CMV for the airbrakes to fully engage once the foot treadle is applied is .5 seconds. The reason this lag time exists, it takes a literal split second for the air pressure in the CMV to convert to energy to apply the brake shoes to the drum. Then there is the CMV weight factor for consideration to stopping distance.

Chandler being an experienced "professional" CMV driver should know that a bobtail tractor (without semi-trailer) is far greater to lose traction during a brake application due to the absence of downward pressure of weight on the fifth wheel from a semi-trailer. Therefore, he should have applied professional CMV driver logic and training and reduced his speed substantially to the conditions such as rain and his claim to "fog", at a bare minimum, the wet road surface.

Backing out the 1.5 seconds to perception to reaction, then backing out .5 seconds due to lag time leaves Chandler 11 seconds to bring his CMV to a full stop. Therefore, a 27 MPH speed is a completely unreasonable estimate to consider. Again, it is more likely in the 60 plus MPH range as reported on Mr. Kelly Peeks memo. The speed limit in the construction zone is posted at 50 MPH.



*"The purpose of any speed limit sign is to inform drivers of the maximum acceptable and safe speed for normal travel conditions", this is according to the FHWA document "Guidelines for the Use of Variable Speed Limit Systems in Wet Weather".*

FHWA further states: *"As appropriate design speeds and maximum safe speeds are determined for a given roadway segment, it is important that the relationship between sight distance and stopping distance is also considered. A driver must be able to see the roadway ahead and have adequate time to come to a complete stop when required".*

Chandler testifies to his perception of speed: A: "..., my last recorded speed was 27 miles an hour." Q: "Okay." A: "According to what the report read." Q: "And do you believe that the speeds noted on that report are accurate?" A: "Up until the time of the accident itself when it says that I quit transmitting, according to the report, I don't see any reason to contradict it." Q: "Okay. So if - -" A: "I don't know enough to raise a contradiction, but I see no reason why it should have been inaccurate up until that point." (TC; 200:12)

#### **5.4 Defensive Driver Training-**

After review of Discovery documents submitted by ICC, it appears that the driver training conducted on September 30<sup>th</sup>, 2010 was relatively substantial from an empirical opinion.

Inclusive of the "Owner Operator Drivers, Orientation Safety Training" was a 2-hour training program detailing the Smith-System Defensive Driver training.

The Smith-System is arguably the premier defensive driver-training program in the North America, if not the world. Simply, had Chandler incorporated his teachings into his daily driving habits, this accident would not have occurred.

The Smith-System trains as to the following methodology. There are five primary key elements in the driver training. In these five primary key elements, there are sub-elements; they are as follows:

##### **Key #1: Aim High In Steering**

- Eyes lead the vehicle properly.
- Sees and evaluates relevant objects from among distant objects.
- Adjusts eye lead distance to speed.
- Keeps vehicle rolling by adjusting for conditions.
- Eyes properly elevated around turns and corners

##### **Key #2: Get The Big Picture**

- Following distance consistently appropriate for conditions.
- Makes and executes decisions early.
- Avoids being unnecessarily boxed in.

- **Speed is neither too fast nor too slow for conditions.**
- Uses knowledge to make driving smoother and more economical.

**Key #3: Keep Your Eyes Moving**

- Scans mirrors frequently.
- Scans major and minor intersections before entry.
- Moves eyes at least every two seconds.
- Checks mirrors prior to slowing or stopping the vehicle.
- Avoids staring while evaluating relevant objects.

**Key #4: Leave Yourself An Out**

- Maintains proper space around the vehicle.
- Adjusts space to avoid unsafe intrusion by other drivers.
- When stopped, leaves appropriate space in front of vehicle.
- **Consistently selects lanes to minimize danger and maximize space & visibility.**
- **Keeps up to date with current size and shape of space cushion.**

**Key #5: Make Sure They See You**

- Seeks eye contact and communicates when conditions suggest the need.
- Effectively times use of turn indicators.
- **Appropriate speed and communications when changing lanes**
- Brakes early to activate brake lights.
- Vehicle positioning promotes seeing and being seen.

**Note on Keys #1-#5:** All of the **bolded** above primary key elements and sub-elements are bolded as they are either directly or indirectly associated to necessary driving behaviors as preventative actions to this crash.

Specifically, in part of the Smith-System Defensive Driver training that was conducted for the benefit of Chandler, there were PowerPoints that stated:

- *Anticipate situations that cause accidents*
- *Adjust driving speed to meet all hazards of weather, roads, traffic, and other existing conditions.*

The two aforesaid points were in addition to Chandler's Five Key Elements in the Smith-System to defensive driver training. Again, had Chandler applied his teachings, this crash would not have occurred.

## **5.5 NTSB-**

It is widely recognized that CMV driving requires a special skill set and training than that of a commuter vehicle, a car. A CMV driver must know his limitations as to driver



fatigue, weather conditions, mechanical functionality and roadworthiness. It is therefore that Chairwoman Hersman of the NTSB stated the following as published in Transport Topics:

*Beyond technology and addressing fatigue, Hersman said truck drivers are held to a higher standard than the average driver, and they need to address safety issues accordingly. "What people in the trucking industry need to realize is they are professionals," she said. "They are professional drivers, and the standard of care and the level of expectations for them and their performance are higher."*

By virtue of Chandler's demonstrated skill set or lack thereof as a CMV driver, his highly suspected inattentive and careless driving clearly was the type of crash causing driving habits that caused Chairwoman Hersman to have made that statement. That too was the obvious opinion of Trooper Meyer whereas he wrote as the contributing factor to the crash as "careless prohibited driving".

#### **5.6 Moth Effect-**

To elaborate on concerns as to Chandler's driving skill set as a "professional driver", Chandler testifies to not applying a general standard of care rule that has earned the phrase of "the moth effect".

Although the moth effect was not causative to the subject crash as there were no other vehicles in front of Chandler that he followed causing him to run off the travel portion of I-40, it is still a noteworthy issue to define Chandler's knowledge of CMV driving.

Chandler states in testimony regarding following lead taillights in foggy driving conditions: *"But it sure would have been nice if I could have looked ahead and seen some taillights and says, 'Hey, that's where I need to go' rather than what I'm fixing to do."* (TC; 222:6)

Applying the moth effect is a deadly practice for a CMV driver. If a CMV driver chooses to follow a lead car, a person likely not trained to the level of a CMV driver, the mistakes the car driver makes will likely have a chain reaction, often with deadly consequences.

#### **6.0 Opinions:**

Based upon the foregoing analysis, as a Commercial Motor Vehicle expert possessing nearly 25 years experience in the Transportation Industry and based upon what is good and safe practices in the Transportation Industry, I have come to form the following opinions as to the CMV crash that caused injury to Plaintiff which occurred at Interstate 40 Westbound, West Memphis, Arkansas, MM 281.6 on Tuesday, January 18, 2011 / approximately 5:48AM . I express these opinions with a reasonable degree of certainty and probability: